he magazine of PACIFIC FISHERIES

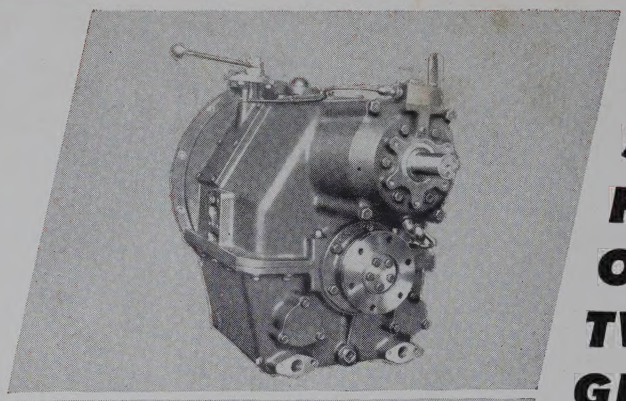
TUNA fisherman

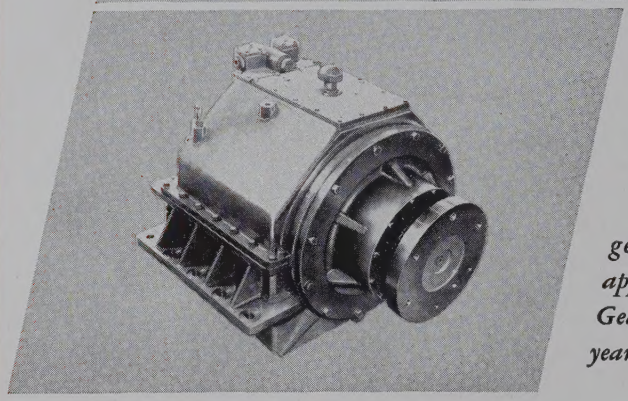
Oscar E. Sette, Chief 5-49
Jordan Hall
Stanford University, Calif.

AUGUST 1948
Twenty-Five Cents

See Page 16

. . . Dedicated To The Industrial Advancement Of A Great Industry





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Two totally different types of marine gears, each outstandingly successful in its application, have been developed by Western Gear Works as a result of more than 50 years of gear research and experience.

Western Marine Reverse and Reduction Gear...

This popular unit has many exceptional features. Actual fingertip control is possible with the hydraulically operated clutches, which afford smooth easy engagement and eliminate the need for costly mechanical linkages. Therefore, remote control from any desired point can be installed easily and inexpensively, with assurance of prompt engine response. The Western Marine Gear, which mounts easily on any standard engine, can be operated full power in reverse continuously, thus permitting right- and left-hand propeller rotation with two right-hand engines. Four power take-offs are available on each unit. Lubrication is automatic. Gear ratios available from 1½:1 to 4:1.

Pacific-Western Planetary Reduction Gear...

Remarkable savings in weight and space are possible with this new type of reduction gear. For example, the weight of a 2:1, 1200-hp unit we installed in a tuna clipper was only 4,500 pounds. The gear enabled the use of a 600-rpm engine instead of a heavy, 300-rpm direct-drive engine. Total saving in weight was approximately 30,000 pounds. A second great advantage was the saving in space. This gear was so compact it could be installed in the shaft alley, saving valuable engine-room space. A remarkable achievement in the design of this new gear is the fact that stress and wear factors are no greater than in the conventional type, despite the light weight and compact size. A range of ratios suitable for your engine and propeller requirements can be supplied.

The Pacific-Western line of marine equipment also includes parallel-shaft reduction gears, Vee-Drives, trawl winches, and related products.

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GEAR PRODUCTS

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It is with extreme pleasure that I congratulate the fine Tuna Clipper SCARLET QUEEN on her addition to the fleet, her owners, crew and her builders, Arne Strom and Haldor Dahl. These men through their skill and experience as shipbuilders have created the world's largest Tuna Clipper. Best wishes for success and full loads.

Earl Nielsen
General Manager.
HIGH SEAS TUNA PACKING CO., INC.

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High Seas Tuna Packing Co., Inc.

San Diego, California

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Tuna Boat
REFRIGERATION

MUST be DEPENDABLE

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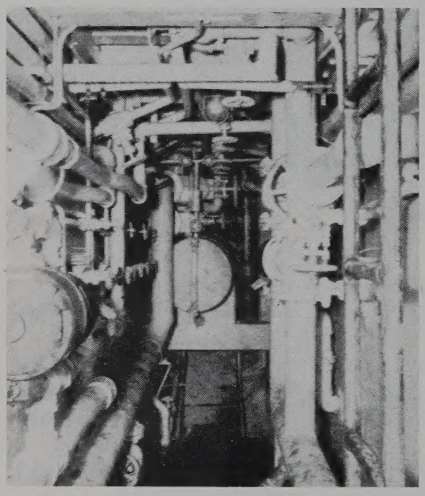
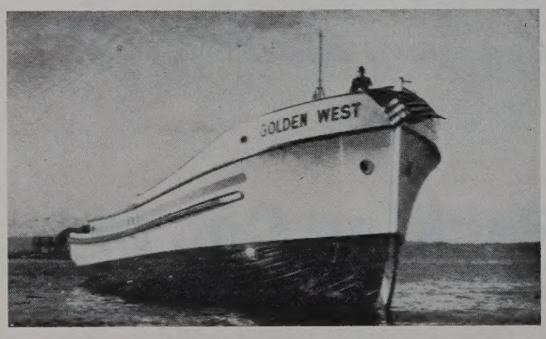


Without modern refrigeration such as this, tuna fishing, whether clipper or seiner, would be a gamble. RELIABLE installations, with their guarantee of controlled temperature, are insurance policies on the quality of the catch when delivered to the cannery.



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"INTENTIONALLY BETTER"

Editorial Comment

"AUGUST, 1948," reads the cover of this month's magazine TUNA FISHERMAN. "December, 1947," reads the first issue dateline.

That's nine months. The embryonic status is ended. The birth period is over. A new publication takes its position in life.

Page 5 of the initial issue read: "The present issue, our first, is, in a related sense, the point of departure for . . . a long and successful voyage. This venture was launched in the belief that a specialized trade journal has become a legitimate and vital necessity for the rapidly-expanding tuna industry and its allied components."

It has been proven, during the past nine months, that the need for the publication was present. We have been extending valuable service to the industry.

The magazine TUNA FISHERMAN—and the automobile—are here to stay. MAKE NO MISTAKE ABOUT THAT! Our staff is competent. Our organization is growing and changing—with the industry.

Constant changes are underway in the publication. They will continue to be made. They will always continue. Ours is a staff made up of specialists. Each time industry growth and conditions warrant changes they will be made—expediently.

New features are being built for subsequent issues which will deal with maintainance and overhaul, equipment in experimental stages, analysis, personnel, taxes, insurance, etc.

Yes, we're pretty busy. We have an industry to serve—and toward that service we work constantly—with no time for gossip and petty 'over the backyard fence' type of misinformation.

We've had our birth pains. They have been taken care of. We will have our growing pains. They will be taken care of.

The workings of the organization are clear-cut. Our editorial policy is clear-cut. We have printed those items and statements. They have been published.

An industry servant is born. Lusty, clear of eye and mind, it faces the future. The chart for the voyage is spread. The course is clear.

the magazine of PACIFIC FISHERIES

TUNA fisherman

A Journal, Published Monthly at San Diego, California, Serving the West Coast Fishing Industry

Volume 2 AUGUST, 1948 Number 3

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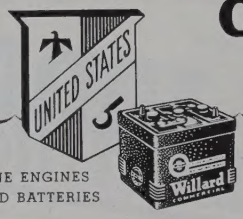
THE COVER. Three staff cameras were focused on the SCARLET QUEEN as she neared San Diego prior to the July 3 christening of the huge craft. Shutters clicked as pictures were made from all angles. The camera boat gained positions which made good pictures and the process of elimination (after prints for the various news services were distributed) was a long one. However, the 'cover shot' gained approval rapidly.



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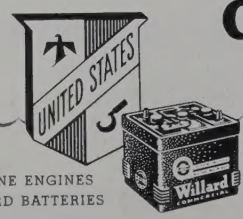

MARINE ENGINES
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CORONADO -- *Designer's Dream*

The latest revelation in tuna boat design is the CORONADO. From the board of Arthur DeFever, Naval Architect and Surveyor, the tuna clipper promises to be a standard reference in proper design.

Coming from the Peterson Boat Building Company's yard the clipper looks every bit the part. Trim, modernistic and sleek, it presents the picture of composite in functional design which has retained every aspect of eye appeal. Moreover, she carries over 10% more bait or fish than corresponding vessels.

Published reports, in booklet form, covering complete inclining experiment for the CORONADO, from data taken at Tacoma during June show the vessel to be the leader in her field.

Previously the M. V. MISS AMERICA, also a practical dream from the board of Mr. DeFever, had been accepted, by a vast number of owners, designers and operators as the ultimate in design from the gyration moment resultants. The MISS AMERICA and CORONADO are about the same length, but CORONADO is a foot wider.

One report concerning CORONADO says: "CORONADO is a foot wider which seems not to be important to stability as CORONADO's G.M. (gyration moment) in worst condition is less than that of MISS AMERICA. The designer seems to have hit the nail on the head with a foot greater depth to length ratio which is reflected in the large righting arms for wide angles of heel and the long range of recovery under the three conditions of load worked up . . . Were the experiments not carried to their conclusion one might say MISS AMERICA was the better from her greater G.M. in worst condition . . . ," but, the report continues the data from inclining experiments tell the correct story, especially for overloaded vessels such as tuna clippers.

The CORONADO, shown above, represents the latest in functional design as shown in experiments made in Tacoma in June. From the board of Arthur DeFever, noted naval architect, she promises to be a reference in proper design.

The tuna clipper CORONADO was launched at Peterson Boat Building Company of Tacoma, Washington, March 27, 1948. Joseph Dores is skipper and O. E. (Jimmy) Hitchcock, chief engineer. At the time of the CORONADO's launching Skipper Dores had been but recently married and was so busily engaged moving into a new home he was unable to attend the ceremonies.

VITAL DATA: The vessel is 103 foot overall and should carry 180 tons. It is equipped with a 465 HP Superior diesel for main engine and has three 60 KW Buda diesel auxiliaries. It has four Baker ice machines and all of the pumps are Fairbanks Morse; Bardco motors and generators are used throughout. The generating sets, as well as the pumps, motors and Navicote marine paints were supplied by Drake and Bullen of San Diego. Arthur DeFever of Wilvers and DeFever is the designer.

An analysis of the CORONADO is being prepared by her designer for September publication in TUNAMAG.

The steel wells next to the engine room, which carry both fuel and fish, are divided so that a minimum of fuel will be wasted.

A total fuel capacity of 30,000 gallons is incorporated which is ample for this size boat. A three-blade bronze Doran propeller is used, together with a monel tail shaft.

A Hughes oil range is installed and an Allen electric steering apparatus is being used.

The vessel will fish for Westgate of San Diego.

The vessel is the outbirth of an attempt to create a medium size clipper, which is the finest in design and equipment turned out to date.

The scantlings and construction appear unusually heavy and rugged.

A sister ship is the VIKING whose construction schedule called for delivery October 10 of this year.

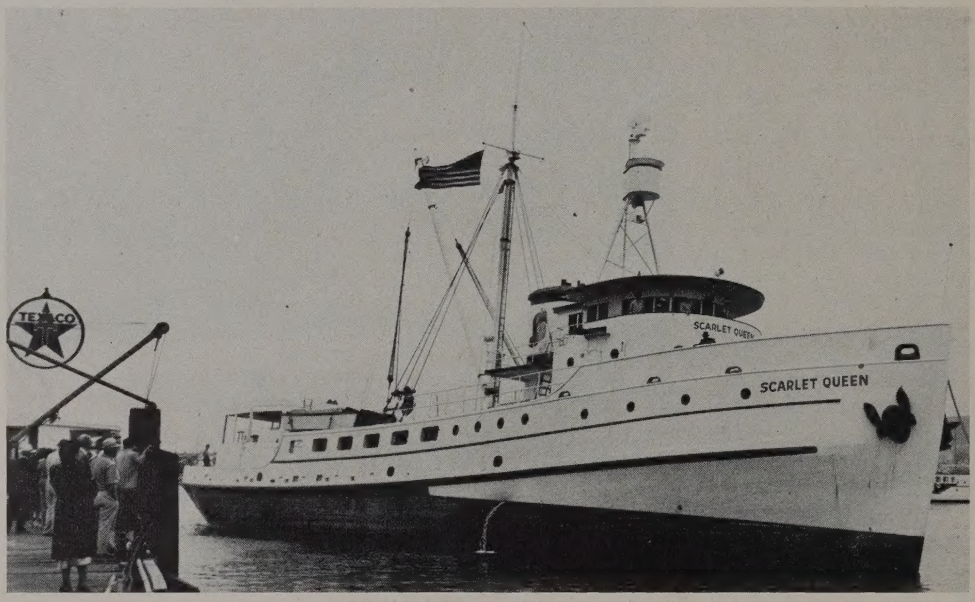
Joseph Dores, Jr., captain and coowner of the CORONADO hails from San Diego by way of Portugal, Gloucester and way-points, and has followed the sea for better than 18 years. He has been on the west coast since 1929 out of a total of 31 years in this country and was formerly captain of the FRANCES MARIE.

Skipper Dores and Builder Peterson

World's Largest Tuna Clipper

the

SCARLET QUEEN



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Direct

Report from Washington

Fish has become the favorite food for diners-out in the national capital, according to a survey by the Washington Restaurant Association. The present order of popularity fish, poultry and meat, is a complete reversal of the heretofore order of choice--meat, poultry and fish.

Several factors are held as responsible for this very enviable position of fish as food in Washington. No doubt the price of fish as compared with other protein foods has much to do with the choice, but other factors also have contributed to this condition. One restaurant owner was quick to explain that fish, as prepared today, has plenty of both "eye and taste" appeal besides that of "purse" appeal. Its background of healthfulness is legend.

Much credit is due right at the source in this successful trek to the table. More care is now taken by the fisherman and the processor to see that his product reaches its destination in first class condition. Modern transportation facilities have also resulted in a more rapid delivery of the fish from the water to the table.

A vigorous educational campaign by federal, state, and local and national fishery organizations has been in progress. Television, radio, newspapers and magazines have been used to point out the advantages of fish as food. Apparently the consumer's preference of fish in Washington is true of many localities of the United States, not only in the restaurants but in homes as well. It has taken a lot of hard work to put fish out in front; constant effort will be required to keep it there.

The Foreign Market Development Program for fish and shellfish is only being inaugurated on a temporary basis. N.F.I. has received a tip that if the fishing industry does not show a specific interest in the program, it may be abandoned.

At the present time, Art Sandberg is on a "feeler" trip on the East Coast and is going to the West Coast next week for Andy Anderson of FWS to determine to just what extent the fishing industry is interested in foreign market development. On Wednesday, Sandberg had an encouraging meeting at Gloucester which was attended principally by canners from Massachusetts and Maine.

Sandberg's swing around the country, according to N.F.I., will be followed by a trip abroad to meet with food experts there. He will make known the findings of his current trip and attempt to determine how our domestic fishery products fit into the purchase plans of European countries.

While there apparently is a pick-up in interest in such a program, the facts are known but to a few. It has been suggested that our members write Mr. E. A. Meyer, Director, Research and Marketing Act, Department of Agriculture, Washington, D.C., who has to allocate funds for this program and tell him about the merits of the program. Time's a'wastin'.

JOINING HANDS WITH OTHERS, TUNAMAG INTENDS, AS FROM THE FIRST, TO BACK DR. CHAPMAN in his efforts to make the new state department post an important one in international affairs. Long neglected and needled the foreign fisheries pacts need the experience and knowledge he has. A west-coast representative in international treaties is a step in the right direction.

the magazine
TUNA fisherman

the— INDUSTRY —*as we see it*

SET FORTH AS AN INCREASE IN THE COST OF ICE is Railway Express Agency Classification Docket No. 3, which calls for an increase in the intended charge to shippers for ice used in the protection of fresh and frozen fish. Protesting to C. F. Messenkopf, General Traffic Manager, Railway Express Agency, Charles B. Bowling, Chief of Agriculture Department's Transportation Division (page 11 June TUNAMAG) said: "We wish to direct your attention to the terrific increase in cost of transportation on fish and fishery products, as proposed by this docket, which most certainly will have to be borne by the already over-burdened Fisheries Industry. It is admitted freely by the Industry that unless they place themselves in a position to compete with other protein foods, their great Industry will suffer a tremendous loss of tonnage which will ultimately reflect back to the carriers in loss of revenue . . . In view of the foregoing, we recommend the cancelling of that portion of Classification Docket No. 3, pertaining to fish and fishery products." N.F.I. made formal protest to the proposal which would almost increase the express rate 25%.

THE U.S. COAST GUARD HAS ORDERS TO PATROL INTO ARCTIC WATERS TO BLOCK REDS from a reported move by Russia to send a large fishing fleet into American waters this summer. They are authorized to make arrests and "initiate judicial action" if no federal authorities are handy.

TUNABOAT REINA DEL MAR REPORTED TO HAVE MADE 400 TONS during her maiden voyage. The mothership REINA DEL MAR was converted from a former Navy net tender and carries a crew of 14. The mothership bases at Puntas Arenas, Costa Rica, and loads her cargo from fishing craft operating out of that port. Skipper is W. D. Studley.

EXPLOSION AND FIRE WRECKED PLANS FOR A FISHING EXPEDITION INTO MEXICAN WATERS by the MURIEL I as two fire boats fought blaze which followed a flash explosion which came just after the crew had finished loading the tanks with gasoline. The blast blew Capt. Dole backward several feet and set his clothing on fire. John Dole, 21, brother to Skipper Chas. Dole,; A. V. Webb, 26, and Walter Hoffman, 30, were treated for minor burns. All of the men, except Hoffman who is a Long Beach resident, are from Redondo Beach. The MURIEL I was at berth 131, Wilmington.

PREDICTIONS STILL EXIST THAT THERE WILL BE AN INFLUX OF JAP FISHERMEN, resulting from the United States Supreme Court's decision invalidating a California fishing law. During June, Tom Smith, warden in charge of the San Diego office, State Division of Fish and Game, was quoted as saying "some tunaboat operators" want Japanese fishermen back, because the Japanese work for less money . . . on a per-ton basis rather than the customary share of the boat's catch." Although there are no confirmations of the predicted influx industry watches with a careful eye.

THE ALBACORE PENDELUM SWINGS ON ITS BACKWARD STROKE as prices retard up to $100 per ton in the Southern California area. Fearing a possible "pricing off the consumer-table" some canneries stopped purchases completely until the re-trenchment of pricing. Although the catch has been very large the majority of reports indicate Albacore is still plentiful and some buyers fear a market-glut for present price levels.

TUNA CANNING PLANTS IN NOVA SCOTIA ARE IN DESPERATE NEED OF FISH as their markets swell throughout the dominion. Two runs of tuna occur in N.S. The first run is from the middle of July to the end of August and consists of large fish and weigh from 450 to 800 pounds. The second run comes in schools from the end of August until October weigh from 80 to 130 pounds.

INASMUCH AS THE ORIGINAL SARDINE MEASURE WAS IN VIOLATION OF STATE AND FEDERAL LAW regarding anti-trust the proposal to regulate size, season, fishing week and asking performance bond was submitted to The Fish and Game Commission of the State of California, in San Diego, for incorporation into existing F & G Commission regulations. The vote was affirmative . . .

Sheddo Russo Reporting - -

from MONTEREY

Sardines Still Plentiful in Monterey

Between three hundred and fifty to five hundred tons of sardines per day have been caught in the Monterey area during the first two weeks of July. Approximately six thousand tons of sardines were caught in the month of June and packed in 8 oz. oblong cans. The 1948 summer sardine season has been the most successful season on record for this particular type of pack. The fleet, consisting of about sixty boats, was on small limits up to fifteen tons, and was employed by the sixteen canneries which were operating. It has been interesting to note that the July fish were of a larger size than the fish caught during the month of June. They ranged from six to nine inches. Should the proposed eight inch rule go into effect on August 1st, it is doubtful that the six to nine inch sardine will be legal.

Captain Sal Colletto Back in Monterey

Captain Sal Colletto of the U. S. LIBERATOR has arrived in Monterey from a successful tuna season in the south. The U. S. LIBERATOR made three quick trips catching a total of about two hundred ninety tons of tuna. After unloading his last load at the French Sardine Company in San Pedro, Capt. Colletto immediately left for Monterey. Upon his arrival, he removed the tuna net, put on his sardine net, and started fishing for the Carmel Canning Company. When asked if he were going to take a vacation before August 1st he replied, "We had a three months' vacation while we were fishing tuna down south!"

Monterey to Have Three Tuna Canneries

Three tuna canneries will be operating in Monterey in the very near future. Oxnard Canners, Inc. of Monterey is installing a modern tuna cannery in the building constructed by the S. A. Ferrante Company which has been acquired by Oxnard Canners, Inc. The plant will have a capacity of canning fifty tons of tuna per day. Refrigeration equipment has been installed to hold approximately three hundred tons of tuna. The Hovden Food Products Company who have a tuna plant adjoining their sardine plant, is at the present time operating on a small scale. It has a capacity of from forty to fifty tons per day, and has refrigeration equipment holding one hundred tons of frozen fish. The third plant which will operate is the San Xavier Canning Company with a capacity of twenty to twenty-five tons per day. This plant has been operating for the past four or five years with local albacore.

Purseiners Change Ownership

The SERRA, the largest purseiner ever built in Monterey has been purchased by Hike Torrente of San Francisco who formerly owned the PAOLINA T. The SERRA was built in 1927 for Erasimo Lucido and at one time was the pride of the Monterey Sardine fleet. It is seventy-six feet long with a beam of twenty feet and is powered by a one hundred seventy-five horsepower Atlas Imperial deisel engine, and has a capacity of ninety tons in the hole. For the past few years, this boat has been operated by Anthony Lucido, son of Erasimo Lucido. Anthony Lucido is now the skipper for the E. S. LUCIDO, tuna seiner. The PAOLINA T. has been purchased by the University of California for a research boat.

Monterey Albacore Boats Scout for Tuna On Monterey Coast

Capt. Don Thompson and Bob Norton of the Albacore troller, LADY JANE have been preparing to go out and search for albacore off the Monterey coast line. Albacore had been sited forty miles west of Pt. Sur early in July by seiners coming up from the south but the small trollers have been unabe to go out to the fishing grounds on account of bad weather. There is a lot of feed along the coast which might indicate an early season.

Pacific Star Damages Net

The purseiner, PACIFIC STAR, owned by Sam Lonero and chartered to John Gardis, has returned to Monterey from the Mexican fishing grounds. After two profitable trips Capt. Gardis set his net on a large school of tuna, close to shore off of Cape San Lucas and snagged, thereby losing three fourths of his net. Damage was estimated at about $10,000.

Canners to Volunteer Conservation Regulations

The California sardine industry announced it voluntarily would establish regulations limiting its catch for the 1948-49 season. Julian G. Burnette, their spokesman, is president of Richmond Fisheries and chairman of their Sardine Advisory Committee working with the California Fish and Game Commission. Burnette said the regulations which he hopes the Northern California sardine season on August 1st:

1—Limit the size of sardines to be taken to eight inches instead of the present seven.

2—Shorten the sardine season by one month's time. This will make Northern California fishing permissible only from August 1 to January 15; Southern California fishing from October 1 to February 1.

3—Limit the fishing week to five days, Monday through Friday. There is no limitation at present.

The industry would provide the means of self-enforcement.

The section reads:

"In order to assure compliance with the above regulations, we propose that each canner and processor post a bond for not less than $5000. Each offense will mean forfeiting the bond and no fish will be delivered to any canner or processor unless such bond is posted.

"Any boat which violates the size limit shall forfeit the entire catch."

The California Fish and Game Commission was asked to act as arbitrator.

Formerly the commission had the power only to limit the size of the sardine catch allocated to reduction plants, where it is made into livestock and poultry feed.

Burnette said commission officials have indicated the allotment last year of 100,000 tons for reduction purposes will remain in effect—if the industry itself carries out the other conservation measures.

Otherwise, the commission has the right to further reduce the allotment. It has another means of indirect enforcement should reduction plant members of the industry refuse to follow the majority decision on conservation—it could refuse them permits to operate at all.

Burnette said the industry does not contemplate setting a ceiling on the portion of the catch to be used for canning. "Cannery operators would not sign any agreement if a bag limit was included. They contend any sardine which has reached eight inches has done all the spawning it can. It is ready to be taken." This is the first segment of the fishing industry which has ever proposed voluntary conservation measures to any degree, said Burnette.

M. V. CORONADO

HIGHEST QUALITY

IN WOOD TUNA BOAT CONSTRUCTION

Designed by Arthur DeFever for Joe Dores, captain, and Jimmy Hitchcock, engineer. Cecil Drake, managing owner.

The Owners State:

"She is the best of her size ever built."

Also building the new "VIKING" for FRANK BRENNA.

Built By

PETERSON BOATBUILDING CO.

TACOMA, WASHINGTON

Washington Visits Southern California

A Washington-California Staff Report

On exploratory tours to discuss west coast commercial fishing problems, especially with regard to tuna fishing, Dr. Wilbert M. Chapman and Dr. O. L. Settee, together with members of his staff (see picture captions), made separate visits the length of the coastal line to bring into focus the industry's picture in relation to the commercial fishing scene not only on the Pacific Coast but in the Gulf of Mexico, along New England waters, in the Great Lakes, Hawaii and the far-flung American mandated isles to the west.

Chapman Offered No "On the Record" Statements

Dr. Chapman said the nature of his new position prohibited him from discussing controversial problems such as the current effort of sport fishermen to keep purse seiners outside the three mile zone. Highlighting the San Pedro meeting was a review of foreign markets and the effect of their fishing practices on the American fishing industry.

Dr. Chapman brought out possibilities for arriving at equitable agreement with foreign countries regarding imports.

The new state department official, who for the first time gives the fishing industry cohesive representation on a policy-making level, told the group that he was making his tour to find out about local problems and complaints.

Dr. Chapman cited two U.S.-Canada commissions which manage, regulate and conduct research on halibut and salmon as good examples of international cooperation.

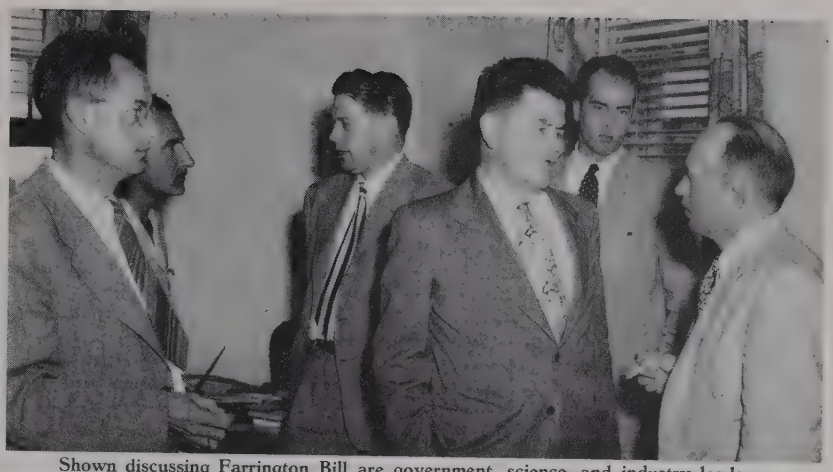
The ex-head of the only U.S. college school of fisheries (at Washigton University) said he anticipates the federal government will continue to help pay for sardine and tuna research. Making San Diego his prolonged stop prior to reporting at Washington, Dr. Chapman's hotel room became virtual headquarters for the tuna industry. In keeping with TUNAMAG policy which strongly recommended Dr. Chapman for the post, Publisher de Beck was part-time guide and liason service aide to the new state department appointee.

Farrington Program to Be Led By Industry Meetings

Typical of "things to come" in the million-dollar Farrington Program mapping process was Dr. O. L. Settee's coastal tour.

Indicating that semi-regular meetings with industry leaders are planned in an

(*Continued on page* 15)

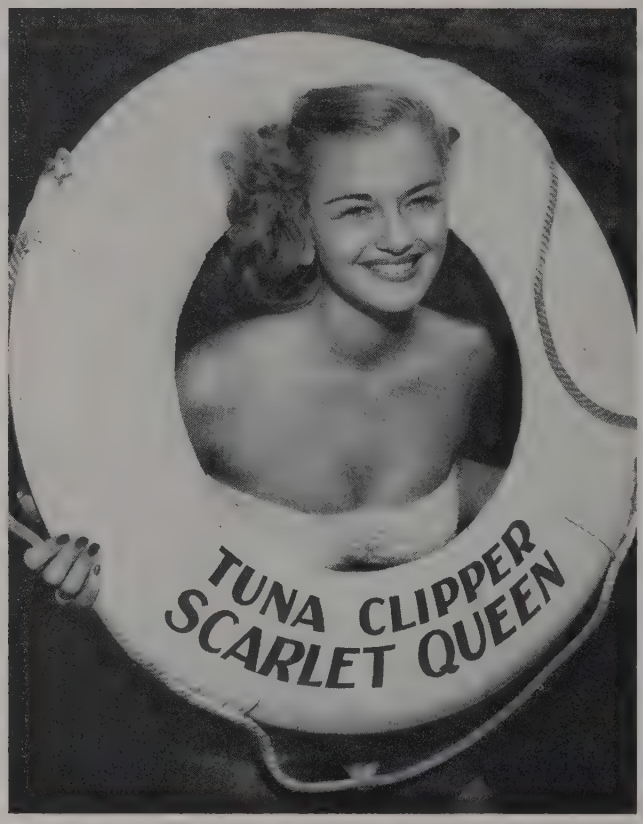


Shown discussing Farrington Bill are government, science, and industry leaders.

Publisher de Beck, Dr. W. M. Chapman, and Matthew Monise.

John Mershon, Dr. Carl Hubbs, and Dr. W. M. Chapman.

A TRIBUTE AND A PROMISE



To the giant Tuna Clipper Scarlet Queen, it's owners, its skipper and its crew—GOOD FISHING!

Famous Market is proud to have been selected as purveyor to the Queen of the tuna clippers—proud of the confidence which brings us the business of a vast majority of the entire fleet. For that we are grateful. Our promise to every boat in the fleet is consideration—service—quality and prices as reasonable as is possible under these existing conditions.

Can anyone offer more?

FAMOUS MARKET

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PURVEYORS TO THE TUNA FLEET

644 12th Avenue **SAN DIEGO**

Meliorate--BUILDER OF HOOKS

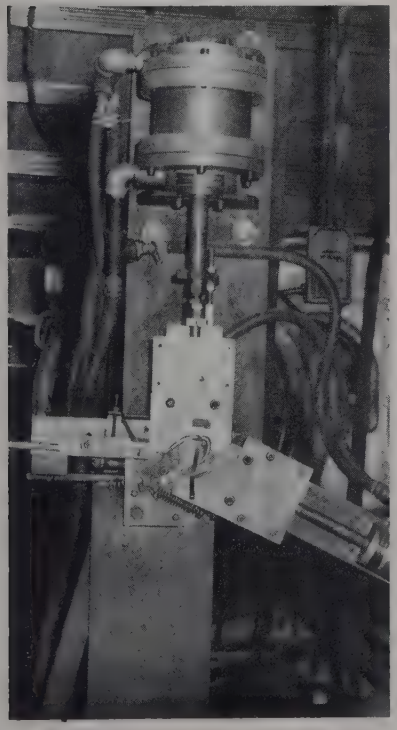
From earliest man's use of the fishing gorge down to the present day manufacture of scientific fishing hooks, as done by Meliorate Products Co. of San Diego, is a far cry indeed. Fishermen in the Old Stone Age shaped up a small rod tapered at both ends (the gorge), covered it over with bait, tied the line in the center, then sat and depended on a fish to swallow the whole thing. A yank on the line and the gorge swung crosswise in the fish's stomach; the rest was up to the fisherman.

Centuries before Meliorate came into the business of fish hooks, the Chinese were tying a splint of bamboo in a doubled-up position for their line fishing. When the line was jerked, the bamboo sprung sideways inside the fish, and his time was up. Somewhere along the way, someone got the idea of catching the fish by the mouth. The line was tied to one end of the gorge and the other was given a twist. The fish hook was born.

Ever since that time, the importance of the twist, the proper bend, the right weight, and a hundred other things, have been determining factors in bringing home the biggest load of fish.

Robert Davey, Jim Cravagan, and Rudy Bantle.

Automatic Hook-bender

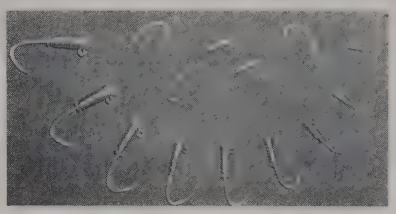


Meliorate Products Co., biggest commercial fish hook manufacturers on the West Coast, has the determining factors well in hand. The firm's sharp and progressive chief designer, Bob Davey, realizes that the Jap's hook designs have been the goal of all hook manufacturers. "The Japs design the most perfect hooks," says Davey, "but Meliorate is now equalling their perfection; besides, where the Japs depend on hand-tooling, our hooks are all made by automatic equipment, and consequently are more perfectly uniform."

The manufacture of commercial hooks is by far not a cut-and-dried proposition. Constant developments and improvements are taking place. To keep up to the latest in progress, Meliorate, under its live-wire sales representative, Joe Soares, is in daily touch with the commercial fishermen — the men who put the hooks to use. From them, Meliorate gathers information and suggestions for perfecting its hook products. Along with the evolution, the automatic machinery responsible for the hooks undergoes perpetual development.

One Meliorate operation with which the firm is especially satisfied (it is proud of them all!), is that of its automatic eye-expanding machine. It insures the eye of the hook against pulling out of the sleeve under astonishing weight.

The manufacture of Meliorate's 30 different sizes of "squid hooks," used by tuna boats, is reduced to a mathematical formula, making each size hook as comparatively strong as the next. The oil-tempering process gives the greatest possible strength to each hook.



Meliorate Hooks

Twenty-seven Meliorate operations go into the making of a single squid hook. The manufacture of every bait hook requires eleven operations.

The only U. S. manufacturer of forged shark hooks, Meliorate sells thousands each year. Hay hooks, used for handling fish on all tuna boats, is one of the company's specially manufactured products, as is also the darts used for getting sword fish.

In the four years Meliorate has been in production, President Rudolph Bantle has watched hundreds of thousands of hooks roll off the assembly into the biggest and smallest fishing boats on the West Coast. Supplier of about ninety per cent of the tuna fleet, Bantle's regular customers include such well known vessels as the Scarlet Queen, Coronado, Courageous, Queen Marie, Mauritania, Sun Voyager, Sun Traveller, Sherry Ann, and most of the others familiar to the fleet.

This Was——

OPERATIONS

The Story

Exploration . . . Tun

By FRANK FIRTH
Cuprinol Division, Daworth, Inc.

Nearly a century ago, David H. Storer naturalist, called attention to the abundance of tuna fish around Provincetown, and until a few years ago practically no more was known concerning them than when his first observations were made.

In 1942 Bigelow and Welsh stated: "The Gulf of Maine has yet to see any organized tuna fishery, nor is it likely that this fish is there in sufficient abundance to support one." Apparently the statement held as fact without serious attempt at proof or argument until 1937. Since it was not uncommon for the fish to reach 1,000 pounds, it was natural that they should gain the title 'horse-mackerel.' Commercial importance of the specie was limited to the oil in the heads and bellies. More recently, however, this trap-operator's nemesis was 'knighted' by the sports-fishermen of the North Atlantic, and has been known since as 'tuna.' It has been found that utilizing the whole fish, properly prepared in its fresh state, can provide a fine, delicately-flavored seafood.

During 1937, 13 years after the Bigelow and Welsh report, under the aggressive leadership of Captain Peter Mercurio of the SANTA MARIA and his co-captain Peter Gurasi (now residing in Monterey, Calif.,) who is at this time fishing in Pacific waters, five seiners rigged with tuna seines had lent proof that tuna were capable of supporting a small fishery.

The 1937 venture was not expected to reap a very great harvest but was looked up as 'ground-breaking' for subsequent seasons. Negotiations were made with a fish-processing plant in Gloucester to utilize all the tuna caught by these boats and tentative price agreements were reached.

The SANTA MARIA, on its first tuna seining trip in July 1937, captured 14,412 pounds of tuna in Ipswich Bay, which averaged 82 pounds each. Within the next 36 days, the same boat caught 93,414 pounds of tuna which had a gross value of $4,670.75. Over 70% of the total seine catches for a three year period belonged to the SANTA MARIA. Due to inexperience and inadequate gear about 25% of the tuna encircled were not landed since on nearly every set the seine broke or the fish drove out.

The old WESTERN EXPLORER, early Atlantic fishing venture, brought in tuna averaging 95 pounds per fish, and loads amounting to about 15 to 20 tons.

During 1938, Bureau of Fisheries' biologists carefully examined 9 tuna at Gloucester, Mass., which had been brought in by seiners. Seven of these tuna conformed to the general specifications of the bluefin, while the other two appeared to be a southern form as yet not identified. Evidence from other sources indicates that bluefins predominate in the New England fishery and that the southern form appears in only minor quanities. Contrary to the beliefs of some experts there are no yellowfin tuna in this fishery.

During April 1938, the old WESTERN EXPLORER left Tacoma to make trials in the New England waters. 80 feet in length with a 20 foot beam she drove through the water with a 200 h.p. Atlas to make th trip to Gloucester, Mass., in 34 days running time. The WESTERN EXPLORER made West Coast stops at San Pedro and other points for nets and supplies. Skipper Ben Nelson, with about five men, arrived about June 1, 1938. Herve Petrich's WESTERN EXPLORER was fortunate in having Nelson, veteran of the California venture in the Philippines, aboard and with the clipper crewed up the fishing began.

By about October 1, 1938, 100 tons of tuna had been delivered. The catch was from schools as large as 50 tons with individual tuna averaging 95 pounds. The largest single load was 20 tons.

That fall and early spring mackerel nets were used with results commercially adaptable. The WESTERN EXPLORER was not equipped to hold refrigerated catches and had been used throughout the trials as a definite experiment with an eye toward possible boat sales.

Sale of the tuna was made at about $100 per ton. The WESTERN EXPLORER was sold and her late owners intended to follow-up the experiment with additional boats. However, international political events interfered. The venture proved successful in its mission to show how the boat should be used to catch tuna. Sale of her to the Newfoundland Government for a herring venture brought the Tacoma phase of the New England trials to a close.

Nearby, but not in connection was the SANTA MARIA. A few Portuguese fishermen in Gloucester, familiar with the 'poling' method of catching tuna tried with little success to make good

Fishing Development in New England

catches. Their failure is attributed to the fact that the fish were of the bluefin variety and that the SANTA MARIA was almost completely lacking in facilities to hold bait.

In 1937, Cape Cod Bay was the chief concentration of the 5 boats, with Ipswich Bay only occasionally fished. However, in 1938, due to the 1937 experience and reports on observations of others, Ipswich Bay was more intensively fished and resulted in being the main production area, with Cape Cod Bay producing a minor quantity. The 1939 catch of North Atlantic Tuna, which is probably the most powerful of fish in that area—with the exception of swordfish—was produced chiefly in Ipswich Bay, up to the Isle of Shoals. Late in the season, in September, the first small schooling tuna ever caught by a seine were taken off Block Island. Only two schools were taken there because bad weather prevented further opportunity to fish.

The WESTERN EXPLORER observations indicated that the larger the fish the smaller the school. Further reports, from that boat, lend belief that as an experiment the venture was very successful and that revival attempts may have failed because boats were not of the proper type to be adaptable to that fishery. The 80 to 90 pound North Atlantic Tuna produced a good pack although the meat was some darker. The larger fish produced a coarse pack.

Tuna seining, and all attempts to revive it, in the North Atlantic area have been abandoned commercially since 1941. Some sources lay the cause to the war. However, the canneries, which were small, folded in 1940.

Whale of a Time!

Joe Medina and Joe Marques, two well known San Diego tuna fishermen, while on vacation in the Azores have been 'whaling the daylights' out of the mid-Atlantic. Invited to go whaling 'Azorean style' the two men brought in seven monsters of the deep. In the Azores whale spearing is done in one man whaleboats. The spearing process is similar to that used by New England whalers of the past decade. On Pico Island, in the Azores, the whales are tried for oil which is shipped to England.

Marques, skipper of the tuna clipper NORMANDIE, got a 60 foot, 200 ton sperm whale on his first try—one of the largest caught since before the war.

Medina, San Diego industry figurehead, has speared six of the monsters, although none as large as Marques' 60 footer, as yet. Marques, returning after an 'interesting vacation,' reported that Medina would remain until late in August.

Washington Visits . . .

(*Continued from page* 11)

efffort to keep the program up-to-the-minute and even keeled, Dr. Settee presented tentative plans and informations to the industry.

Pointing out that the allocated million dollars was a "drop in the bucket" appropriation compared to what is needed for a long range informational program.

Construction contracts, purchases and conversions will require a lions-share of the available cash and consume the major portion of the coming fiscal year.

Under advisement, by the Farrington Program director, is a San Diego suggestion that the program gain immediate head-way by the early charter of a fishing boat and crew which would operate while purchased boats are being converted.

One immediate problem, Dr. Settee said, is to locate a skipper to lead operations during conversion and exploratory work.

During the early stages of planning and construction members of the program will probably report in Hawaii and Japan to study data and methods.

Mershon and Hubbs Attend S.D. Meetings

Scripps Institution of Oceanography's Dr. Hubbs and R.F.C.'s OREGON skipper John Mershon compared notes with both Dr. Chapman and Dr. Settee during their San Diego visits. Mershon's Hawaii information and the technical detail held by Dr. Hubbs were welcomed by the visitors.

The Scripps Institution has been recently augmented by the 140-foot ocean-going tug HORIZON and an, as yet, unnamed 80-foot purse seiner which are undergoing conditioning at Point Loma while a third addition to the fleet, the 116-foot minesweeper CREST will undergo reconditioning at Oakland.

FCC Reassigns Call Letters

The Federal Communications Commission has made final its proposed rule-making of February 20, 1948, providing for reassignment of call signs to radio stations aboard ships. It amends parts 5 and 8 of its "Rules and Regulations" governing the Experimental Radio Services and the Ship Service to specify the calls which will be assigned to certain existing ship radio stations and radar stations.

Many of the calls now assigned to such stations will be changed. Each licensee will be notified of the call assignments to be used by the stations for which he is responsible, and the date of the change.

The effective date of the new call signs for stations on board ships authorized exclusively for radiotelephony, and not carrying radio equipped survival craft, was July 1, 1948, and the licensees concerned were slated for notification on or about May 1, 1948. The effective date of the new call signs for stations on other types of ships is November 1, 1948, and the licensees concerned were to be notified prior to August 1, 1948.

In each change of notice issued to a licensee, the Commission specified:

The following identification procedures will be followed in cases where the operator considers it desirable or necessary to identify a radio station by its old call sign, as well as by the new call sign, after this change in call sign becomes effective:

(a) When using telegraph, the transmission of the new call sign will be followed by the fraction-bar character, followed by the old call sign. Example: ". . . de KAAZ/ABCD."

(b) When using radiotelephone, transmission of the new call sign will be followed by the word "formerly" followed by the old call sign. Example: " . . . WA2255, formerly WAZZ."

Note: The procedure as outlined in these special instructions may be followed for a period ending not later than 3 months from the effective date of the new call signs.

An alphabetical list of the changes involved, including old and new calls, and the dates involved, will be published following complete F.C.C. listing.

The Fleet Crowns

Majestic and dignified on one hand; befrilled and bedizened as ony a debutante can be on the other, Scarlet Queen, largest tuna boat afloat, rode calmly on the waters of San Diego's embarcadero Saturday, July 3, at high noon, to be greeted by more than 2,000 spectators and guests with an ovation that would have done credit to a victorious battleship of World War II.

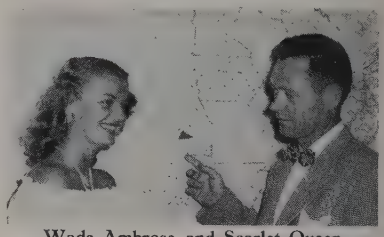
The Queen's addition to the Pacific Coast's roaring, lusty tuna fleet represented something more than advent of another tuna clipper; her debut, in fact, marked an additional, and much more important, step in the development of an industry that, at one time minor, today represents a $50,000,000 blue chip in San Diego's industrial development. And everyone of the thousands assembled apparently felt the impact, subconsciously or not. A flesh and blood monarch, indeed, could not have demanded, or received, more homage.

There was Barbara Blakeley, redhaired Miss Scarlet Queen, of the movies, Virginia Dunn, United-Artists starlet of the Cisco Kid movies and genial Harry Von Zell, radio, television and moving picture star. There was the world's largest tuna clipper, M V SCARLET QUEEN, 165 feet 5 inches of fishing boat.

Keynote of the affair was the opening address of publisher de Beck which, in part, said: "Welcome, to the christening of the world's largest tuna clipper, the Scarlet Queen, being broadcast for your pleasure" (station KUSN San Diego) "through the facilities of the Harbor Boat and Yacht Company of San Diego and the Tacoma Boatbuilding Company of Tacoma, Washington, from whose yards came the SCARLET QUEEN, and the High Seas Tuna Packing Company, for whom the SCARLET QUEEN will fish the Pacific . . .

"This event does not receive its importance solely because of the size of this magnificent clipper, but rather because it is indicative of an ever expanding industry, which has made its influence felt in all corners of the world. We are assembled here, this afternoon, not only to christen a fishing vessel, but to pay tribute to a great industry and to the men who go down to the sea in fishing boats from whom this colossal industry draws its strength. We, . . . salute the SCARLET QUEEN, her skipper, each and ev-

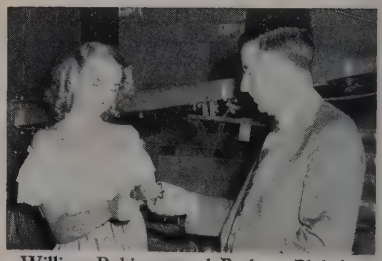
Virginia Dunn and Von Zell



Wade Ambrose and Scarlet Queen

Mrs. Johnnie Athaide and Harry Von Zell.

Von Zell and Miss Dutra



William Robinson and Barbara Blakeley

Its Scarlet Queen

ery member of her crew and all those people who have made it possible for the SCARLET QUEEN to join the great West Coast tuna fleet. May she safely sail the waters of the vast Pacific Ocean, as she successfully fulfills her mission in bringing back her cargo that will add international strength to nourish a growing world . . ."

The ceremonies had begun. An overflow crowd sat, and stood, in the beaming sun through the rest of the hour.

Harry Von Zell, star of the show, turning from wit to humble reverence was master of ceremonies. Telegrams and letters poured in from personages all over the country and foreign nations. Among them were messages from Mr. Charles G. Ross, secretary to Mr. Truman, in behalf of the President of the United States; Congressman Thor C. Tollefson, member of the Merchant Marine and Fisheries committee and member of the Ship Construction, Operation and Maritime Labor subcommittee as well as chairman of the Fisheries subcommittee; California's Governor and Republican Vice Presidential candidate Earl Warren; Chas. B. Bowling, Chief of Transportation Rates and Services Division, U.S. Department of Agriculture; Dr. John Laurence Kask, former Assistant Chief, Fisheries Branch, Tokyo.

Dr. W. M. Chapman, Special Assistant of Fisheries to Undersecretary of State, Robert A. Lovett; Albert M. Day, Director, Fish and Wildlife Service; Mal Xavier, National Fishery Institute; Senator Sheridan Downey; Governor of Baja California, Garcia Gonzalez; Agustin Olachea Aviles, General of the division off Gobrnado; Jack Carson of movie and radio fame; Arthur Treacher, actor from Great Britain; John Wayne, famous movie personality, and many others.

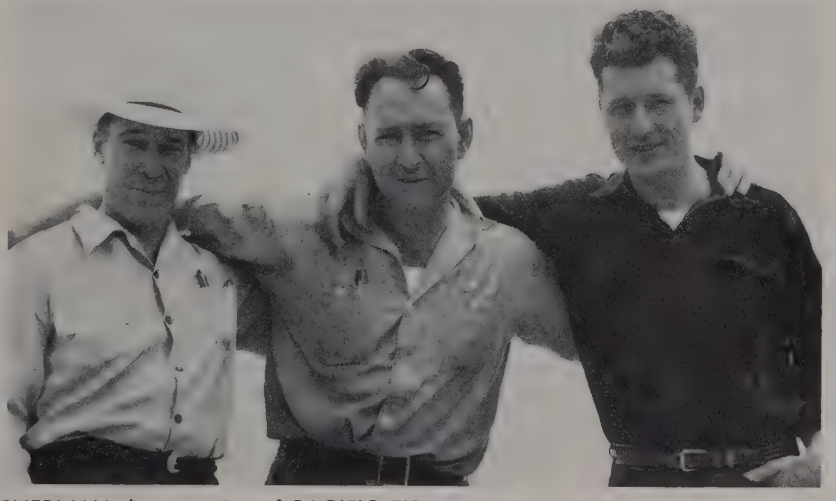
The ship and the crew were San Diego's celebrities for the day. Paragon Productions had their television cameras trained on the ceremonies. Flash bulbs flared of press associations. Magazine writers--for the popular readers, were there. It was a big day. It was a magnificent tribute to the men and women of a great industry and its allies.

The tuna clipper SCARLET QUEEN, converted from a Navy deep-sea tug and whose main engine was salvaged from an LSM which had been knocked out by a Kamikaze plane during com-

(*continued next page*)

CHAMPAIGN FLOWING, BUT NOT DOWN THE GULLET . . . ***Elsie Nadine Dutra, daughter of Tony Dutra, MV Scarlet Queen skipper, christens the tuna industry's latest daughter of Neptune, while Harry Von Zell calls the strikes (background) and Barbara Blakeley looks on with approval.***

Below (left to right) Tony Dutra, Skipper, Walter Burruss, Chief Engineer, and Navigator Kennedy.



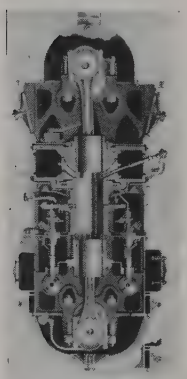
bat in the Pacific, was readying herself for a return to those waters to bring home hundreds of tons of protien food for the weary and hungry.

Skipper Tony Dutra and Chief Engineer Walter Burruss discussed the technical details of the SCARLET QUEEN with M. C. Von Zell, paying a tribute to Arne Strom and Haldor Dahl, Virginia Dunn recounted some of her Hollywood experiences. A recent bride, Virginia Dunn had interrupted her honeymoon to pay tribute to the industry.

Lt. Goodwin, representing the United States Coast Guard, bound more closely than ever the ties that exist between the men of the fleet and their ever-on-duty guardians, during a message of congratulations and good wishes.

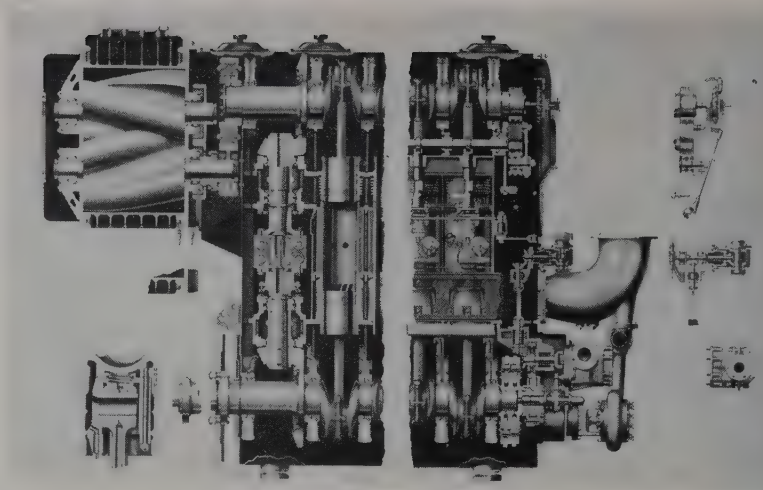
Port Director John Bate, representing the civic organizations of San Diego, added well-wishes to the clipper and the industry she represents.

The crew's cook, McCracken, recounted the experiences of years at sea, in a galley, as he voiced his congratulations during an interview with the inimitable Von Zell, who held the crowd strongly in the grasp of his personality.



Photos Courtesy of Fairbanks Morse

Below: Model 38-D Diesel Injection Engine.



Cross Section Fairbanks-Morse Model 38-D.

Earl Nielson of the High Seas Packing Company briefly represented that portion of the industry during interview with the Master of Ceremonies.

The parade past the microphone continued as a cross section of the industry and the nation was represented. The sun beamed down from its high-noon position and Harry Von Zell mopped perspiration with an already dampened handkerchief. This was the hour of climax for he and many others. Events had been planned and re-scheduled—even now broadcasting time was running short; Barbara Blakeley had visited some of the units of the industry—been honored by Fighting Group Five Able, jet fighter group,—and together with Von Zell presented Jack Graham, San Diego Padre home run king, a token on behalf of fishermen by the International Marine Press Association at the previous night's ball game—then a reception afterward and another radio show. Yes, the previous night had been short, and the planning long. Yet, as the sun beamed down and time leaped ahead of schedules, a great industry was receiving tribute—tribute it so richly deserved.

The group of persons seated on deck, and on the embarcadero, were notable. A list far too long to print, almost every one of those in attendance was a story in himself.

Arne Strom and Haldor Dahl hed done a fine yard job. The owners had a fine boat. The boat had a grand crew. They had good equipment from many suppliers. The broker had done a tremendous job. Literally hundreds of persons had been envolved in completing the vessel and preparing her for a voyage. The industry in its every aspect was represented in cross-section.

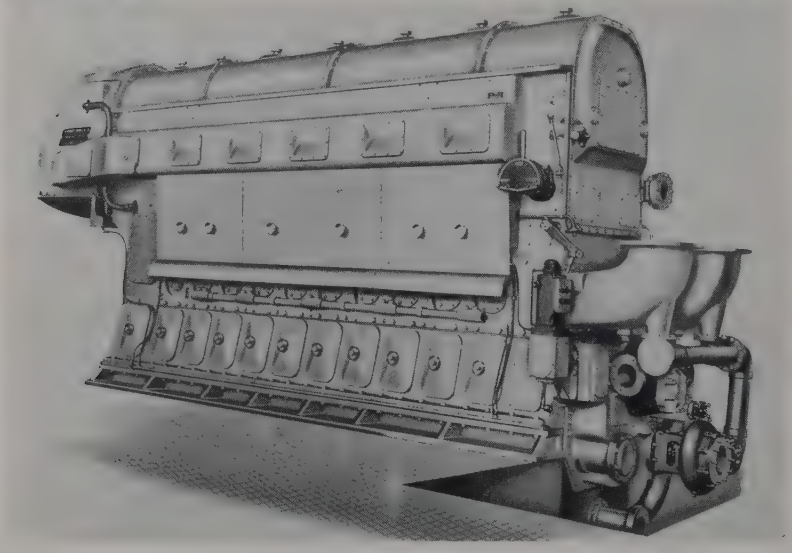
Johnny Elles, representing the crew, gave the audience a brief sketch of the story behind the painting of the 'Scarlet Queen" which is painted on the clipper.

There had been laughter—and information. The industry had paraded past. The clipper proudly sat her position in the water—a symbol of a great and modern industry — powerful, the work and coordination of many.

Now was time for the industry to pay its tribute to man's God. A blessing, for the safe conduct of the boat and her crew was asked. All added their prayers to the request. Homage to the Creator of all that is good. The protector of Man. The Father of all.

Elsie Nadine Dutra, vivacious daughter of Skipper Tony Dutra, swallowed her nervousness momentarily, grasped the bottle firmly in both hands and with a lusty swing "I christen thee SCARLET QUEEN" became reality.

(*continued next page*)



The fleet had crowned, in the name of the industry, a queen.

With a mighty roar a Coast Guard PBM Mariner Patrol Plane swept the deck and as the thunder of mighty engines lessened a floral tribute of rose petals—dedicated to the men who risk health, fortune and life itself that an industry might live—floated down from the heavens.

VITAL DATA:

Not only is the "Scarlet Queen" the largest tuna boat afloat, but is also one of the most powerful. The main propulsion engine is a Fairbanks Morse 10 cylinder model 38D opposed piston 2-cycle engine which the Navy rated at 1800 H.P. This type of engine was used extensively in landing and patrol craft during the war and is also identical with the Fairbanks Morse submarine engine which powered a great number of U.S. submarines.

The particular engine installed in the "Scarlet Queen" was salvaged from an LSM which had been knocked out by a Kama Kaze plane during combat in the Pacific. Although the vessel was badly damaged, the two Fairbanks Morse engines in the vessel came through in good operating condition.

Fairbanks Morse & Co. began development of the model 38 opposed piston engine about 1933. The engine was designed to give the greatest horsepower possible in the lightest weight and smallest cubic contents. Prior to that time, diesel engines always had been heavy, slow-moving machines which could not always be installed to the best advantage—particularly in smaller vessels requiring high horsepower. In this development, no thought was given to the reduction in cost of the engine. Rather, the first consideration was given to the most important features of absolute reliability and over-all economy in operation.

During the early stages of development, the Navy recognized this engine as being ideal for submarine service where the Naval applications needed a rugged and reliable engine as a prime consideration. About 1935 the Navy began purchasing practically the entire output of the factory and from that date until 1945, practically the entire production of the opposed piston engine went to Naval service. With the end of hostilities, however, the engines have become available for commercial service. To date, over four million horsepower has been installed.

The opposed piston engine is radically different from the ordinary diesel

(*Continued on page* 21)

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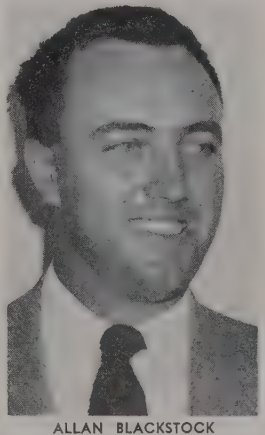

ALLAN BLACKSTOCK

Attention!

Tuna Fishermen

Modern Clippers carry and depend on airplanes for easy fish finding. . . . We can teach you how to FLY on FLOATS.

Left to rights William E. Harris, instructor pilot; A. E. Brown, co-owner; C. W. Wilson, co-owner and manager. The airplane is a Cessna being equipped with EDO FLOATS.

CESSNA & EDO FLOATS ON SCARLET QUEEN

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ELSINORE, CALIF.

(*Continued from page* 19)
engine. It is an engine without cylinder heads or valves. The only parts within the working cylinder is the cylinder liner itself, and pistons. The engine uses a plain open-ended cylinder in which two pistons operate from either end. The engine uses two crank shafts—one at the top and one at the bottom of frame, which are conneced together by a vertical shaft and bevel gear drive.

There are two pistons in each cylinder, joined by their respective connecting rods, to the upper and lower crank shaft. These pistons alternately move inward to the center of the liner where combustion takes place and then both pistons move outward away from the center of the liner on the power stroke.

At the end of the power stroke, the lower piston first opens the exhaust port and then the upper piston opens the air scavenging port through which air is supplied by the rotary scavenging blower. Air is blown through the cylinder, completely scavenging the exhaust gasses and filling the cylinder with a clean supply of fresh air. The scavenging blower delivers nearly 50 per cent more air than the total displacement of the cylinders, which assures a full supply of fresh air and a clean combustion on every power stroke.

The bore of the engine is 8⅛". Each piston makes a stroke of 10" which results in a total effective stroke of 20" in the combined motion of the two pistons.

Each cylinder has two injection pumps, and two nozzles injecting the fuel from opposite sides into the combustion space between the pistons as

(*Continued on page* 23)

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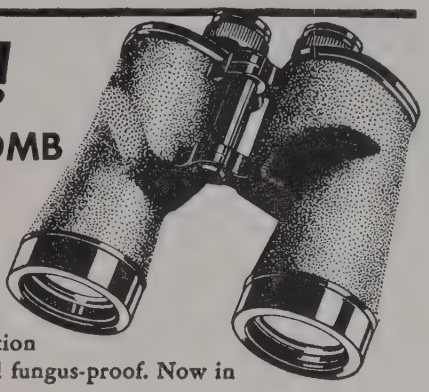

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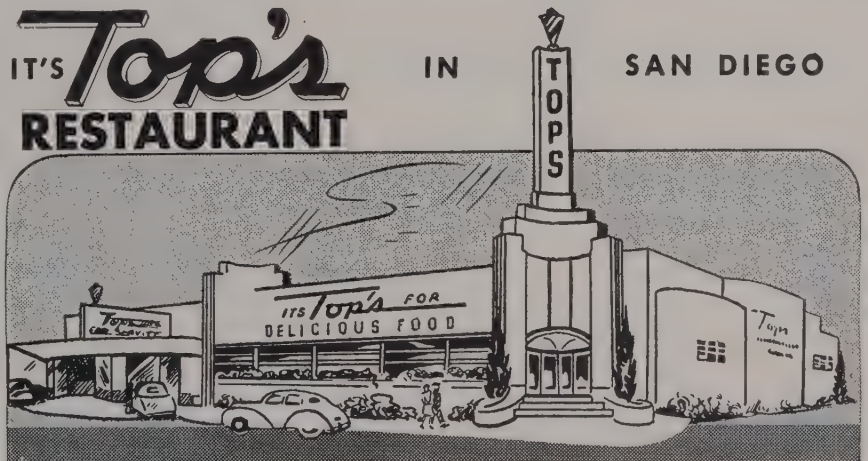

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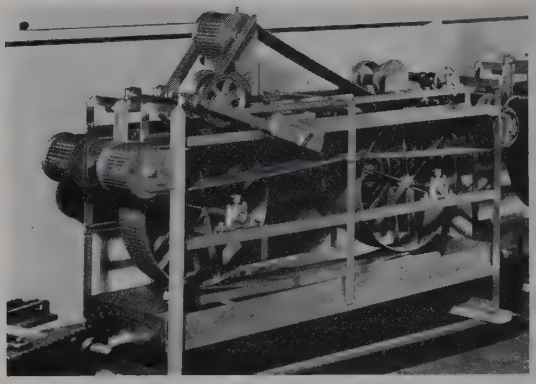

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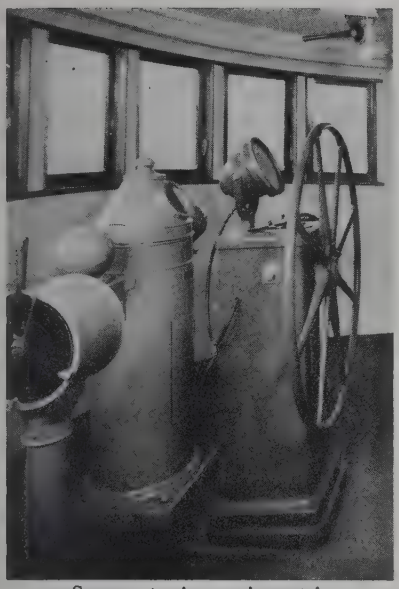

Sperry steering equipment in Scarlet Queen wheelhouse

the pistons approach each other at dead center.

Operating at 720 RPM, the engine has ten power strokes per revolution, or a total of 7,200 combustion strokes per minute. The power strokes overlap each other so closely that the power output from the engine is extremely smooth.

The Navy, when selecting engines for submarines, required an engine which could operate for months at a time in the Pacific off the Japanese coast away from their bases for long periods of time and absolute dependability was required. The simplicity of the two cycle opposed piston engine without cylinder heads made the Fairbanks Morse opposed piston engine particularly adaptable to this service.

The tuna fishing fleet requires the same kind of reliability. Tuna boats are away from port for as long as three months at a time. During this period, they are entirely dependent on their main power unit. The same features of reliability demanded by the Navy make this engine ideal for the long cruises of the tuna fishing vessels.

The engine is built with an all welded steel frame and is entirely free of castings used in the ordinary engine. The frame is welded from heavy steel plate and after all welding is completed, the entire frame is placed in a large oven and heated to relieve all welding strain. The frame is also magnafluxed and carefully checked before it is machined. It was this welded steel frame which made the engine particularly adaptable to submarine service. Many submarines were heavily depth-bombed and the shock would crack the frames of ordinary cast iron construction. The steel frames stood up under the heavy beating without difficulty.

Steel frame construction, combined with the opposed piston design provides

Navigator Kennedy inspecting Sperry Gyro

an engine of maximum strength and maximum horsepower with minimum space and weight. The 1800 H.P. opposed piston marine engine weighs approximately 38,000 pounds.

A comparable engine in a conventional slower speed construction weighs approximately 136,000 pounds. This saving of almost 100,000 pounds, or approximately 50 tons makes it possible to install the engine far forward in the bow of the vessel, and at the same time permits material improvement in

(*Continued on page* 25)

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(*Continued from page* 23)
the lines of the bow of the boat to improve its speed. Heavy engines require a full bow to provide the necessary buoyancy to support the weight. The opposed piston engine can be installed in a vessel with extremely fine lines at the bow which will materially improve the speed. At the same time, the great reduction in weight of the engine in the bow improves the seaworthiness of the vessel by relieving the bow heavy characteristics created by the heavier engine and allows the vessel to ride the waves in heavy weather.

The reduction in size of the engine permits building the vessel with greater cargo space, and a greater weight of cargo can be handled. After all, tuna boats are built to carry tuna fish and not heavy weight cast iron around the Pacific. You don't make any money carrying 50 tons of iron around, but 50 more tons of fish means money in the bank.

The reduction in size and weight of the engine in no way sacrifices its reliability. The engine has removable cylinder liners which incorporate the water jacket and liners in one assembly. At no time does water come in contact with the main frame of the engine. The water is carried into the liners by screwed connections. When a liner is removed, the water jacket, which is a part of the liner, is also removed and when the liner is replaced, a complete new water jacket goes with it.

The engines are all fresh water cooled. The engine of the "Scarlet Queen" has both oil coolers and water coolers, both controlled by automatic temperature valves to maintain correct oil and water temperatures under all conditions.

The pistons are completely oil jacketed and cooled with lubricating oil carried to the pistons through drilled connecting rods. The entire crown of the piston and the sidewalls of the piston are oil cooled to maintain the piston temperatures at correct volute. This thorough cooling of the pistons completely frees the engine from ring sticking and also reduces cylinder and piston wear to a minimum. Very few engines of the conventional type, even sizes up to 16" bore, use oil jacketed pistons.

The injection system is built by Fairbanks Morse in their own shop. Each cylinder has two injection pumps and nozzles, the nozzles firing from opposite sides of the cylinder to give complete distribution of fuel throughout the combustion space.

The engines are started by compressed air stored at 250 pounds and are of the direct reversing type.

The "Scarlet Queen" has pilot house control of the engine speed, from the pilot house. The maneuvering is controlled manually at the engine by the engineer on duty, also from the crow's nest.

Although the engine operates at 720 RPM, it is installed with a 3 to 1 reduction gear, giving a propeller speed of only 240 RPM. The slow speed of the propeller results in far higher propeller effficiency as compared with the propellers used on conventional engines which usually rotate from 300 to 360 RPM. The gain in propeller efficiency far exceeds the small loss in power through the reduction gear and results in greater gain in propulsion for the same horse power.

Generally speaking, the Fairbanks Morse opposed piston engine is well on its way to becoming a leader in the tunaboat fleet. Its compact design and light weight make it ideal for fitting the forward location of the typical power plant in the boat, at the same time permitting fine lines for improved speed and seaworthiness. The reliability of the engine based on the simplicity and minimum number of working parts through the sparing use of heads, valves etc., shows successful operation over long periods on extended voyages.

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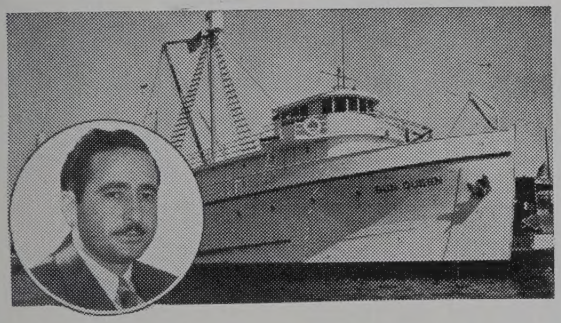

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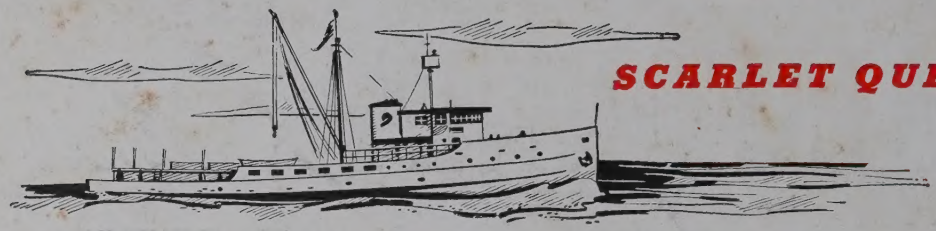

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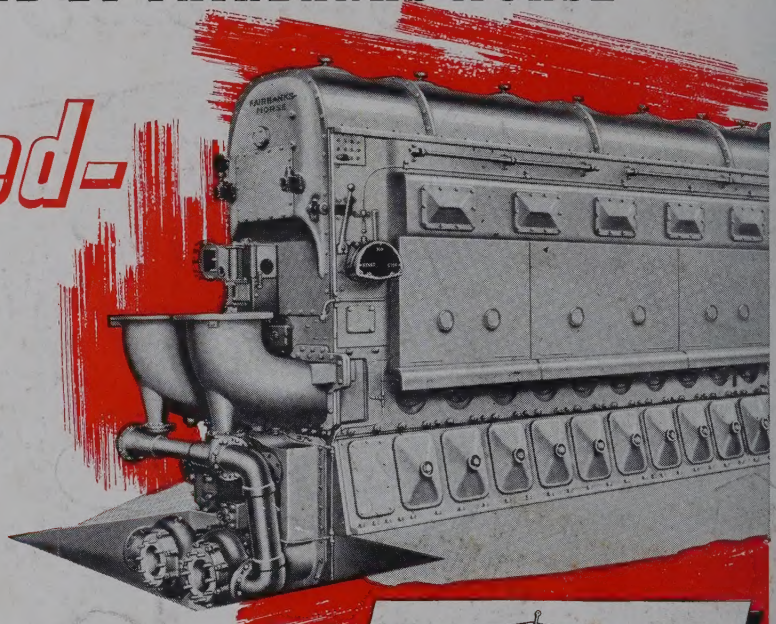

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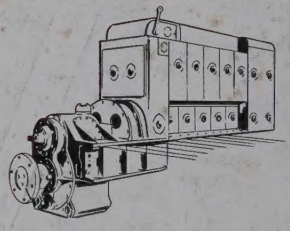

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